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WESTERN COUNTIES RAILWAY

PROVINCIAL SECRETARY'S OFFICE,

December 3rd, 1878.

JAMES ODELL, Esq.,

Civil Engineer :

SIR,—

I have it in command to inform you that you have been appointed to make an examination of the Western Counties Railway, extending from Yarmouth to Annapolis, and to make a report upon the present condition of the said Railway to the Government.

It is desired that the Report shall embrace the following information :—

The width and slopes of all cuttings and embankments.

The Drainage.

The sufficiency of Embankments on marshy grounds and otherwise.

Wooden structures, as to the policy of having such, and character of those built.

Grades—at such locations as Sissiboo Bridge.

Amount and quality of rolling stock, rails, and all other materials employed in connection with the railway.

Value of the work done, and cost of completing the road, and putting it in efficient working condition.

Such other observations as may occur to you in your examination of the line.

The report to embrace calculations from Yarmouth to Digby, and from Digby to Annapolis, separately.

The estimate to be made as accurate and correct as can be conveniently done, with a view to present the actual present condition of the work on the Railway.

I have the honor to be, &c.

S. H. HOLMES

Provincial Secretary.

REPORT OF EXAMINATION OF WESTERN COUNTIES RAILWAY.

By JAS. ODELL, Esq., C. E.

HALIFAX, 6th February, 1879.

TO THE HON. PROVINCIAL SECRETARY:

Sir,—

In accordance with instructions contained in your letter of 3rd of December last, I have made an examination of the condition of the Western Counties Railway, and have the honor to report as follows:

Proceeding from Yarmouth for a distance of fifteen miles, I found that the grading, generally, had been fairly done. From thence to the Meteghan River, about fifteen miles further, it has not been so well done, as I found several portions of the road-bed formed of logs and poles covered with about one foot of earth, especially in the vicinity of Jessie's Lake, and also between the Salmon and Meteghan Rivers, where the ground was of a boggy nature, and should have been excavated and filled with earth, which would have rendered the material sufficiently firm. In some of the cuttings also, poles, which had been apparently laid for convenience of carting during the construction of the work, have been left in the ground, and the track laid upon them.

In some of the shallow embankments, stumps have been left standing in the road-bed, and in others, I endeavored to ascertain whether they contained perishable material, but abandoned it, as owing to the depth of the frost, it would have involved much time and labor, to have made the necessary excavation, but there were sufficient indications to convince me that many of the embankments were improperly constructed, and in those places where logs, poles, &c., were observed, the track must be removed and the road-way re-constructed, as, in its present condition, it is unsafe for traffic.

At Lake Annis, about seventeen miles from Yarmouth, the line passes along the margin of the lake, and requires better protection to guard against the action of the water, which has washed away a portion of the embankment.

Between the Meteghan and Sissiboo Rivers, the grading is of a better character, and the material for the formation of the road-bed is of better quality. Beyond the Sissiboo River, near Thibeaup's road, the line runs along the margin of a mill-pond, and has been protected by an embankment which, however, has proved insufficient, as the water from the pond has washed away the road-bed for some distance.

All the earth-work has sustained serious damage through want of attention to remedy the effects of frost and rain, which have caused the slopes of the cuttings and embankments to slide considerably.

Many of the embankments have apparently never been made more than fourteen feet wide on the road-bed, which, from the frequent sliding, has been considerably reduced, the width at present, in some places, not exceeding nine feet.

The cuttings as a rule, have been excavated to a width of fifteen feet, but the slopes never having been properly finished, the earth has fallen in, necessitating the removal of the material, and the formation of surface drains through the cuttings.

Between Yarmouth and Hebron, some of the cattle guards and box culverts are built of dry masonry, but beyond that, both the Beam and Box culverts are built of wood, and therefore cannot last beyond four or five years from the present date. All wide ravines are crossed by trestle bridges on pile foundations, of which there are twenty-one, making an aggregate length of about five thousand feet of bridging. Of these the bents at the ends where they have come in contact with the embankment, there are already indications of decay.

The Bridge over the Salmon River appears to be too low, as the space between the corbel and the surface of the water is only nine inches. The same objection applies to the bridge crossing Dean's Brook, at Grossecocque River. The caps on the piles of one of the bent's are split, and require to be renewed. In other respects the structures will suffice, so long as the timber remains sound, but wherever trestles have been substituted for embankments, the ravines should be filled with earth as soon as practicable.

The most objectionable feature in the line is the crossing of the Sissiboo River, as the bridge is approached from the west side on a sharp curve with a descending gradient of one foot in sixty-six feet, or seventy-nine feet per mile. Upon the east side of the river, and adjoining the bridge, there is a reverse curve with an ascending gradient of one foot in sixty-nine feet, or seventy-six feet per mile. The bridge, which is also on a curve, and for which eighteen bents of trestle work have been erected, will be about twelve hundred feet in length, and forty feet above high water, twenty-five feet in depth, and must be provided with a "Draw" for the passage of vessels.

Being situated, as it is, at a bend in the river, rendering the approach very inconvenient for vessels going down stream from Weymouth, and in further consideration of its being a wooden structure, the location of this bridge is so exceedingly objectionable that, in my opinion, it should, if possible, be avoided. This, from the limited observation that I was enabled to make, appeared to be practicable by following the west bank of the river from Journey's Lake, and crossing at a point higher up the stream, above the post road bridge, and thereby saving the expense attending the draw bridge and avoiding any interference with the navigation. That, however, and the difference in cost between it, and completing the line as at present located, can only be determined by an instrumental survey.

Between Yarmouth and Weymouth forty-four miles of track are laid. For a distance of twenty miles, or to Farish's Lake, many of the ties are of small size, but from thence to the termination of the track, the ties are of a better quality.

Between this point and the Sissiboo River there is an unfinished cutting involving excavation of about five thousand cubic yards.

Between Digby and Weymouth there are about eleven and a half miles of track laid, and also one mile from Raquette Brook along the first location of the line towards the strait, which latter has been used for the conveyance of ballast.

A number of sidings have also been laid along the line, measuring in all about one and one half mile.

Between Journey's Lake and Digby there are now about eleven miles of track yet to be laid, for which a considerable number of ties have been distributed along the road-bed ready for use.

For a distance of eight miles from Yarmouth the track has been ballasted, and for about twenty miles further about half ballasted. Between Digby and Weymouth six miles of the track have been partially ballasted, leaving fifty-eight miles unfinished, or allowing for that portion where half the ballast only has been deposited, an actual length of forty-eight miles to be ballasted.

There are about six and three quarter miles of the line which have been enclosed with a board fence and fifty-eight miles of rail fencing, but the greater part of the board fence is in a dilapidated condition, having been so insecurely built that in many places it has fallen down, thereby revealing the fact that the posts have only been set into the ground for a depth of from fifteen to eighteen inches.

At various points along the line there are numbers of piles of ties, which however will speedily decay from exposure to the weather in consequence of their being very compactly piled.

There are also rails and fastenings sufficient for laying about fifteen miles of track.

The works remaining to be done, to render the line available for traffic, are the following:—

Drainage, &c., through cuttings.....	\$8,450
Completing Embankments	19,000
Excavation W. of Sissiboo River.....	1,250
Sissiboo Bridge.....	64,000
Track to be laid.....	8,850
Ballasting required.....	31,200
Repairs to Fencing	200
Rip Rap required.....	2,000
Rolling Stock	109,550
Station Accommodation.....	25,260
Total.....	\$259,760

MATERIALS DELIVERED.

Ties piled and distributed, 56,140.....=27 miles.
 Rails and Fastenings,=15 "

ROLLING STOCK.

2 Locomotives.
 35 Platform Cars.

Between Digby and Annapolis, detached portions of the earth-work have been done, making in all a distance of about fourteen miles, but none of the cuttings have been finished, and many of the embankments are deficient in width upon the road bed, and those which had been carried out into the water of the several rivers to be crossed, have been washed away up to high water mark. Five and one half miles of rail fence, and one half mile of board fence, have been built.

The box culverts, which are of dry masonry, are very roughly built, and some of them must be rebuilt as they have already begun to fall. There are six hundred ties delivered upon this portion of the line.

Nothing has been done towards the construction of the bridges required.

The works remaining to be done to complete the roadway are,

Bridging	\$280,000
Earthwork	40,000
Track laying	6,087
Ballasting	11,212
Fencing	4,400
Sleepers	2,112
Rails and Fastenings	57,455
Rolling Stock	42,650
Station Accommodation	7,750
Total	<u>\$451,616</u>

I have the honor to be,
Sir,

Your obedient servant,

JAS. ODELL, C. E.